Salmon-Challis National Forest
Existing Vegetation Mapping Project
Field Reference Data Collection Guide & Protocols
4/5/2012

Introduction

This document will serve as a guide to reference data collection for the Salmon-Challis National Forest Existing Vegetation Mapping Project. Detailed instructions on how to fill out the datasheets are included in this document. These protocols have been established following the USFS Existing Vegetation Classification and Mapping Technical Guide as well as guidelines from the Remote Sensing Applications Center.

Background

The Salmon-Challis National Forest is responsible for managing vegetation to meet a variety of uses while sustaining and restoring the integrity, biodiversity, and productivity of ecosystem components and processes. In building the knowledgebase required to accomplish this mission, existing vegetation information is collected through an integrated classification, mapping, and quantitative inventory process. This information structure is essential for conducting landscape analyses and assessments, developing conservation and restoration strategies, and revising land management plans that guide project development and implementation.

The data you collect will be used to create a mid-level (1:100,000 scale) map of current (existing) vegetation communities across the Salmon-Challis National Forest. Data gathered will include information on species composition, forest and shrub canopy cover, and tree diameter class. Dominance type and corresponding vegetation type map unit class will be determined using the *Salmon-Challis Vegetation Keys.* Canopy cover will be determined using a combination of ocular estimation and line intercept methods. Data will be estimated based on an overhead or "birds-eye" view from above. Vegetation canopy overlap will not be considered. Collected data will be recorded in electronic format in the field reference database.

Tools

You have been provided several tools to assist in the field data collection process. They include:

- Dominance type key
- Field data collection forms
- Field overview maps (1:160,000 scale)
- Field travel maps (1:20,000 scale)
- Plot maps (1:9,000 scale)

General Data Collection Procedures

Field information will be collected from three types of plots:

- Pre-selected field plots
- Field observation polygons
- Opportunistic field plots

Pre-Selected Field Plots

The Salmon-Challis project area has been divided into 2 geographic areas (Figure 1). Approximately 400 pre-selected field plots have been identified for each geographic area (GA). These plots were chosen using spectral information from Landsat Thematic Mapper satellite imagery, elevation, slope, and aspect. They are not a random sample of the mapping area and have not been established along a sample grid or other sampling procedure. Plots were selected in vegetative homogenous areas generally within a quarter mile of a road or along trails. Some plots may be behind closed roads or in roadless areas. Approximately 50 to 100 plots are located in designated Wilderness Areas requiring non-motorized access (e.g. backpacking) and over-night camping

The pre-selected field plots should provide a sample of the landcover communities that occur on the National Forest. For each plot, the plant species composition, canopy cover, and tree size data will be used to determine the vegetation dominance type and the following vegetation map classes: vegetation group, vegetation type, canopy cover, and tree size.

Field Observation Polygons

A minimum of 3, and optionally 4, additional field observation polygons will be collected with each of the pre-selected field plots. You will use the plot maps (1-meter resolution NAIP aerial imagery and segment polygons) to identify observation polygons containing homogenous vegetation and estimate the vegetation group, dominance type, vegetation type, canopy cover class, and tree size class. This provides an opportunity to quickly collect additional vegetation information. Field observation polygons are collected with the intent of capturing additional information about the various vegetation types that occur in the general area. Observation polygons that are adjacent to the field plot should only be collected if the polygon represents a vegetation type that differs from the field plot.

Opportunistic Field Plots

Opportunistic plots can be established for those existing vegetation types that lack adequate representation in the sample. Opportunistic plots are meant to be collected as crews travel to and from the pre-selected plots. Up to 200 opportunistic plots may be established by crews in addition to the pre-selected plots. Opportunistic plots follow the same data collection protocols as the pre-selected plots.

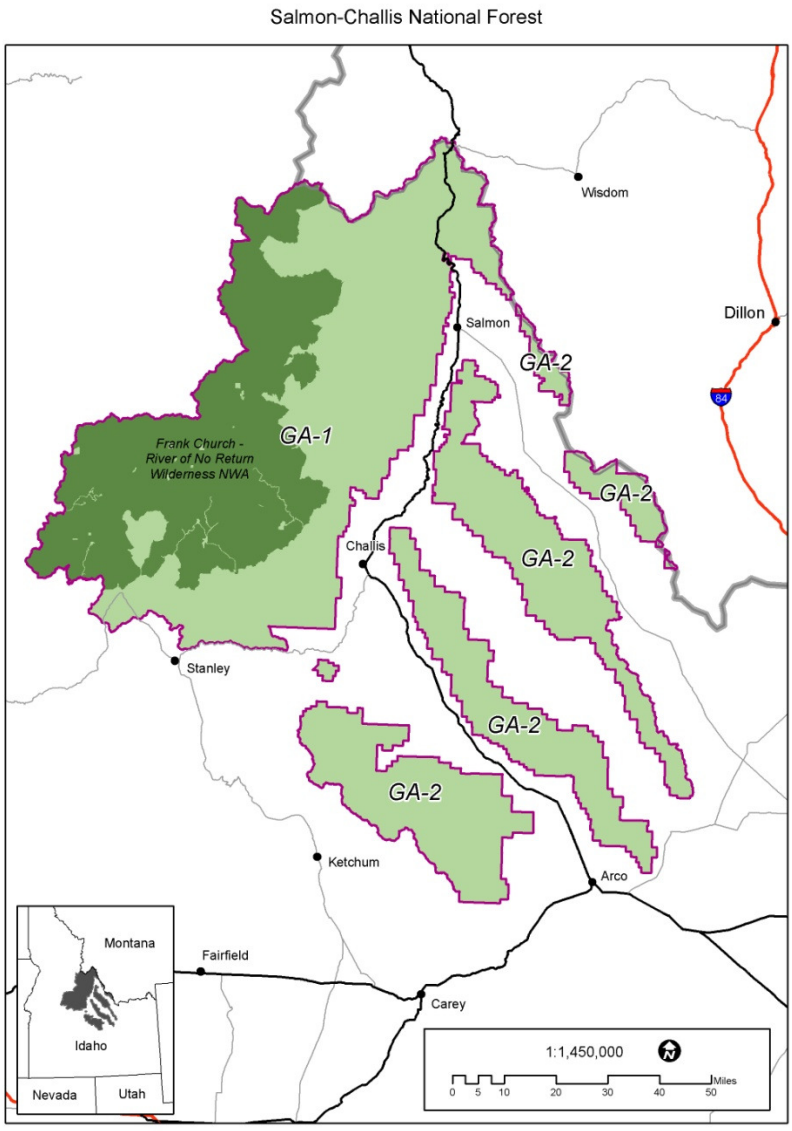


Figure 1. Project Geographic Areas (GA's).

Sampling Process and Data Collection Procedures

The sampling process contains three steps: planning, navigation, and data collection.

Step 1 - Planning

Before leaving the office, each crew should know where they are going, what information is going to be collected, and have the appropriate gear to complete the task. Review the overview maps and travel maps to determine the best travel routes. Check with your supervisor and/or crew lead before leaving. Coordination with designated Forest personnel to ensure access should be completed before leaving for field.

It is the responsibility of the field crews to assure that a unique plot number is assigned to each *opportunistic* plot. A set of available plot numbers for each GA should be allocated

among crews prior to commencing field work. The first digit of the *pre-selected* plot numbers refers to the GA number. The pre-selected plots for GA-1 range from 1000-1499 and for GA-2 from 2000-2499. *Opportunistic* plot numbers assigned to crews for GA-1, for example, could consist of 1500-1549 for Crew 1, 1550-1599 for Crew 2, etc.

All plots collected must be within the project boundary (i.e. on NF lands designated for the project). The plots cannot be adjacent to lands of the project boundary. It is the responsibility of the field crew to assure that plots are within the project boundary.

If any plots are revisited, they cannot be labeled as *moved* or *opportunistic* and given a second number. It is the responsibility of field crew members to keep track of plots visited and who has been assigned to visit a particular plot.

Gear check list:

- GPS unit
- Digital camera
- Batteries (GPS and Camera)
- Data sheets
- Dominance type key
- Travel maps & plot maps
- Pencils & sharpie
- Clinometer
- 100ft tape
- DBH tape
- Compass
- Flagging
- Pin Flags
- Whiteboard

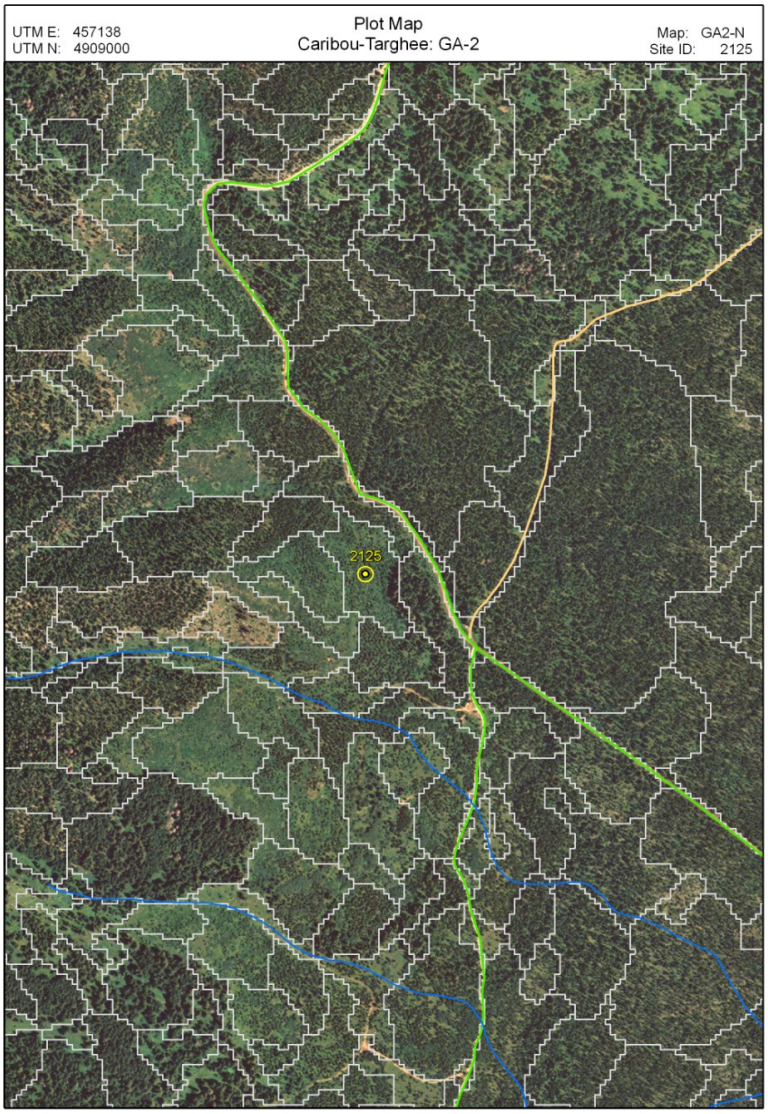
Step 2 - Navigation

You have been provided with the coordinates of the pre-selected field plot center, and navigation and plot maps with 2011 NAIP aerial imagery in the background to help with navigating to the plot. The waypoints should be pre-loaded on the GPS unit. Plots have been located generally within a ¼ mile of a motorized route (or foot trail in Wilderness Areas) to make them as accessible as possible.

However, there is no guarantee that the plots will be accessible. If you cannot get to the plot, but can clearly see it from some vantage point, fill out as much information as possible and note the plot as viewed from a distance. Record the UTM coordinates of the pre-selected plot (from the plot map) on the field form, not the GPS coordinates of the viewing location.

If a plot is completely inaccessible and cannot be viewed, note that the plot is not observable, and either go on to the next plot location or move the plot to a nearby area comprised of similar vegetation and topographic characteristics as identified on the plot map including vegetation type, aspect, and slope. If a plot is relocated, note the plot as moved on the field form. Do not assign a new plot number to a moved plot or record it as an opportunistic plot.

As you navigate between pre-selected field plots, look for vegetation types that have not been adequately sampled. A list of underrepresented types will be provided by the Forest Service at regular intervals throughout the field season. Collect an opportunistic field plot using a new field form, assign a new plot number, and note the plot as an opportunistic plot. Observation polygons do not need to be collected for opportunistic plots unless they can be identified from one of the plot maps.



Plot map showing pre-selected field plot locations, roads (color-coded by type), streams, and segment polygons.

Step 3- Data Collection

- Pre-selected field plots

Once you arrive at the field plot location, make sure it is representative of the segment as delineated on the plot map. Walk through the segment area 100-200 feet around the plot center. If the pre-selected plot is not representative of the segment, move the plot center to a more representative location within the segment. This option should be used with caution and good judgment. If the segment is very heterogeneous, sample the most representative vegetation community type (i.e. of which type the segment is mostly comprised). In the Notes section of the field form, include rationale for moving the plot, and details of dominance composition with the segment.

The size of each plot is a 50 foot radius circle. Once the location of the plot has been determined, place flagging or a pin flag at the plot center. Pace or measure and flag the plot boundaries in each cardinal direction from the center of the plot. In designated Wilderness Areas, use sticks or rock cairns to mark the plot instead of flagging. Estimate all vegetation data within the plot area from a "bird's eye" view or top-down perspective. It is important to walk through the entire plot before estimating species, canopy cover, and tree size class. It may also be helpful to mark out a 5 foot radius subplot representing 1 percent of the plot area to assist in calibrating your estimates.

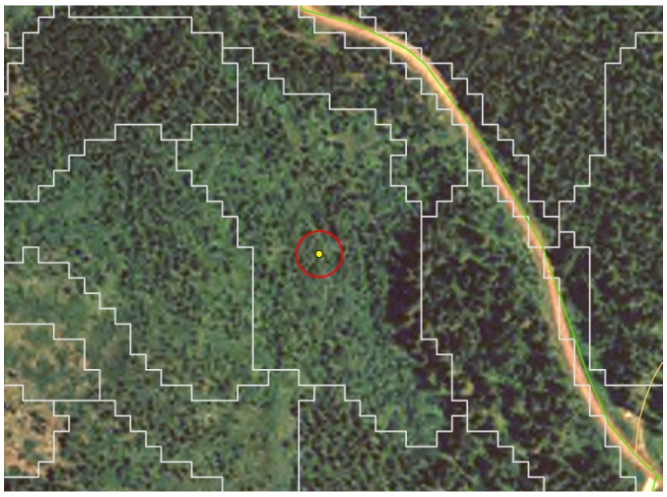
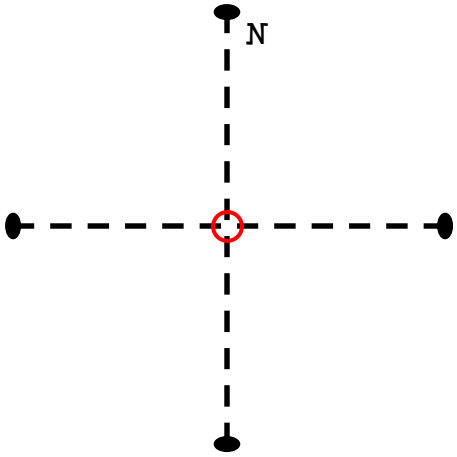


Image map showing plot center location and corresponding 50 foot radius plot boundary within a segment containing relatively homogeneous vegetation.



For the first 5 shrubland plots per observer, use the transect intercept method to determine the shrub canopy cover to calibrate subsequent ocular estimates. For every 3-5 shrubland plots thereafter (per observer), use the transect intercept method to maintain consistency of your ocular estimates. The intercept method involves laying out two perpendicular 100-foot transects through the plot center; one running north-south and one running east-west, using tapes and stakes. Do not allow the vegetation to deflect the alignment of the tape. Estimate and record the number of feet of live canopy cover intercepted for each species within each 10-foot transect increment. Round the estimate to the nearest 0.5 foot for each 10-foot increment. Gaps within a single plant, flowers, and flower stalks should be counted as part of the shrub. The total for each transect is the canopy percentage for that transect. The N/S transect and E/W transect percentages are then averaged to calculate the overall shrub canopy cover.

- Field Observation Polygons

For each of the pre-selected field plots, 3 to 4 field observation polygons will be collected using the plot map (1:9000 scale with NAIP imagery as a backdrop). On the plot map, identify a segment representing an area of homogenous vegetation, label it A, B, C, or D, and fill in the appropriate information on the left side of the back of the field plot form. Here you will provide general information on the vegetation group, dominance type, vegetation type, canopy cover class, and tree size class. Where easily identifiable, target a variety of vegetation types and structure classes to capture the representative vegetation communities occurring in the project area. Observation polygons that are adjacent to the field plot should only be collected if the segment represents a vegetation type that differs from the field plot.

If you cannot correctly make a determination on all of these calls, complete those that you have confidence in. Make sure the labels are legible and the segments you select represent areas of homogenous vegetation composition, including canopy cover and tree size class. If you cannot adequately identify the segment on the plot map (i.e. heavily forested areas) then record the GPS location so that the precise location can be accurately located.

Of particular interest are segments containing homogenous vegetation types that have not been adequately sampled. The crew lead will provide an updated list of these types throughout the field season. Again, any vegetation type collected should be homogenous and should not consist of an inclusion representing only a small proportion or rare occurrence on the landscape.

- Opportunistic Plots

While you are traveling from plot to plot and you identify areas containing vegetation types that have not been adequately sampled, you can establish opportunistic field plot locations and collect vegetation information in the same way as specified for the pre-selected plots. Four principles should guide your selection of opportunistic field plots:

1. Plots will represent vegetation types that are underrepresented, as directed by project personnel.
2. Plots should be located in vegetation types that are homogenous across segments.
3. The plot should represent a single vegetation life form and not consist of an inclusion.
4. The plot should not cross roads, major topographic breaks, major streams, etc.

Opportunistic plots **must** be given a completely new number; a previously assigned number cannot be used for an opportunistic plot. Field crews will allocate a set of numbers so that no one will duplicate a number. The individual crew will be responsible for keeping track of their numbers previously used for opportunistic plots.

Initial direction regarding what is considered under-represented will be given at the start of the project. As field data sheets are received by project personnel, tracking and tallying of both the vegetation types being collected and their distribution will assist with future selection of opportunistic plots. It is the responsibility of field crews to coordinate with Forest Service personnel in the appropriate collection of opportunistic plots which can be modified as the field data collection progresses.

Data Collection Forms

This section provides information on how to fill out the datasheets.

Field Plot Form

1. Plot ID — Record the 4-digit field plot number.

2. Names of collectors— Record the names of the personnel collecting the data. Initials can be used if they are unique to the entire team. However, names are preferred on the first few forms for each geographic area.

3. Month/Day/Year

4. Level of Observation— Record the level of observation. "VI" stands for visited field plot, "VFD" stands for plot viewed from a distance, "NO" stands for not observable, "MV" stands for moved plots, and "OPP" stands for opportunistic plot.

Note: For all VFD (viewed from a distance) plots, record the UTM coordinates of the pre-selected plot (from the plot map), **not** the GPS coordinates of the viewing location. Coordinates of the viewing location can be included in the Notes section.

5. UTM E & N— Record the coordinates for the center of the plot. You should collect a minimum of 30-60 positions for non-forested plots and 60-90 positions for forested plots (or as many as possible if experiencing difficulty). It is important to collect positions **from the plot center**, so be at the center to start collection. Every plot should use a PDOP mask of 6 and elevation mask of 15. If the GPS is not working (low satellites, etc.), then raise the PDOP, using the highest accuracy (i.e. the lowest number) possible. In the Notes section, record changes to PDOP and elevation masks. If using a GPS unit where the PDOP and elevation masks cannot be set, verify a precision of ≤30 feet before collecting positions.

GPS unit should be set to the following projection:

UTM, Zone 11
NAD83
GRS1980

Note: although the SCNF resides in two UTM Zones, all coordinate data **must** be recorded in UTM Zone 11 format.

6. Field Photograph— Take a single representative photo of the field site (more can be taken if necessary) and record the digital photo number. Take the photo from a location along the plot perimeter that has a side-hill view toward the plot center to capture the slope of the site. This photo number will need to be completely unique to all photos taken so that when it is transferred it does not get confused with other photos. The photos should be renamed at a later time to match

the field plot number and cardinal direction taken (e.g. 1224W). A whiteboard or other marker with the field site number can also be used when taking the photo to help identify the site.

7. Geographic Area— Record the geographic area (GA) that the site is located in. This number should appear on the field plot list and plot map.

8. Ocular Plot Composition— (Estimated from a "top-down" perspective). Estimate and record the total canopy cover for each life form: trees, shrubs, herbaceous, and non-vegetated. Woodland species are included with trees for the ocular plot composition by life form. Determine percent canopy cover as if you were looking down on the stand from the air; do not double count overlapping layers that are not viewable from above. For example, smaller sized trees being overlapped by larger ones will be ignored and not counted in the canopy cover estimate. The sum of canopy cover for trees, shrubs, herbaceous and non-vegetated must add up to 100%.

Based on the life form cover estimates, determine the vegetation formation for the site using the vegetation key. For the life form identified for the site, list up to the 5 most abundant species having ≥ 5% cover. For each species, record the PLANTS codes from the Salmon-Challis species list. If the code for any species is not known, its name should be written out and the code looked up later. If a plant can only be identified to the genus level, e.g. due to seasonal condition or disturbance, record only the plant genus and make a note of it on the form. There is one exception where species occurring with less than 5% cover would be recorded. Where the most abundant tree, shrub, or herbaceous species occur with <5% cover, record the most abundant species in order to determine dominance type and corresponding vegetation type map unit.

For each of the listed species, estimate and record the percent canopy cover as viewed from above. Record the combined percent cover of all "other" species that were not individually listed on the form in the previous step. Species cover estimates must sum to the total life form cover estimate previously recorded. This will allow for making a determination of the vegetation occupying the plot without collecting a complete species list.

If a plot is near the borderline between vegetation formations, record up to the 5 most abundant species for the secondary formation as with the primary formation described above. For example, if tree canopy cover totals 12 percent and shrub cover totals 20 percent, record the species and cover for both the tree and shrub life form. As another example, if shrub canopy cover totals 12 percent on a plot that is clearly not forest or woodland but otherwise dominated by herbaceous cover, record the species and cover for the shrub and the herbaceous life forms.

9. Tree Size Class— (Estimated from a "top-down" perspective). For forest and woodland sites only (≥10% tree cover), list out each tree species and cover as recorded in #8. For each species, determine the percent cover of each overstory tree size class and enter it in the size class columns. Determine percent cover of each size class as if you were looking down on the stand from the air; do not double count overlapping layers that are not viewable from above. For example, smaller sized trees that are being overlapped by larger ones will be ignored and not counted in the size class estimate. Total the estimated percent cover for each size class.

Tree size will be determined by estimating diameter at breast height (DBH) for all tree species except those designated woodland species in Table 2. For woodland species, tree size will be determined by estimating diameter at root collar (DRC). Instructions for determining DRC for woodland species are found in Appendix A.

Table 2. Salmon-Challis DRC Measured Woodland Species

JUOS	Juniperus osteosperma	Utah juniper
JUSC2	Juniperus scopulorum	Rocky Mountain juniper
ACGR3	Acer grandidentatum	bigtooth maple
CELE3	Cercocarpus ledifolius	curlleaf mountain mahogany

For the first 5 tree sites, measure DBH or DRC to calibrate subsequent ocular estimates. For every 3-5 plots thereafter (per observer), measure DBH or DRC to maintain consistency of your ocular estimates.

10. Shrub Canopy Cover by line intercept— (Only use if primary or secondary life form of the site is shrub). List the Plant Codes for each major shrub species. Lay out two 100-foot transects perpendicular to each other and intersecting the plot center; one running north-south and one running east-west. Estimate and record the number of feet of live canopy cover intercepted for each species within each 10-foot transect increment. Gaps within a single plant, flowers, and flower stalks should be counted as part of the shrub. Total the estimates to determine percent cover of each species. Total all shrub species percents to get the actual shrub canopy cover for that transect. Calculate the overall shrub canopy cover by averaging the total shrub cover from the north-south and east-west transects. A measured line intersect should be completed for every 3 to 5 shrubland sites visited to help maintain consistency for the ocular plot composition estimate (#8).

Plot Summary

11. Vegetation Group— Based on the canopy cover from the ocular plot composition (#8) and vegetation key, determine the vegetation group and record it as the first call ("1st" column). A list of the vegetation groups can be found in Appendix B. If shrub canopy information from transects (#10) has been collected, use the overall shrub transect cover to determine the vegetation group. If the ocular estimate is considered to be more representative of the plot, use the ocular estimate to determine the vegetation group. Include a comment in the notes indicating the ocular estimate was used to make the vegetation group call.

If a plot is near the borderline between vegetation groups, record the secondary group in the "2nd" column. For example, if tree canopy cover totals 12 percent, record Conifer or Deciduous Forest or Woodland as the first call, and Shrubland, Herbaceous, or Non-vegetation as the second call based on the cover of those groups. As another example, if shrub canopy cover totals 12 percent on a plot that is clearly not forest or woodland, record Shrubland as the first call and Herbaceous or Non-vegetation as the second call based on the cover of those groups.

12. Dominance Type— Based on the ocular plot composition (#8) and the vegetation keys, determine the dominance type and record it in the "1st" column. For shrubland plots, if shrub canopy information from transects (#10) has been collected, use the shrub species transect cover to determine the dominance type. However, if the ocular estimate is considered to be more

representative of the plot, use the ocular estimate to determine the dominance type. Include a comment in the notes indicating the ocular estimate was used to make the dominance type call. If a plot is near the borderline between dominance types based on canopy cover, record the secondary dominance type in the "2nd" column.

13. Vegetation Type— Based on the vegetation group and dominance type, determine the vegetation type and record it in the "1st" column. If a plot is near the borderline between vegetation types, record the secondary type in the "2nd" column based on the secondary dominance type. A list of the vegetation types can be found in Appendix B.

14. Canopy Cover— Based on the predominant vegetation group, determine the canopy cover class for forest, woodland, and shrubland sites and record it in the "1st" column. Upland and riparian forest/woodland should be assigned a tree canopy cover class. Upland, riparian, and alpine shrubland should be assigned a shrubland canopy cover class. A list of the canopy cover classes is found in Appendix B. For shrubland plots, if shrub canopy information from transects (#10) has been collected, use the overall shrub transect cover to determine the canopy cover class. If the ocular estimate is considered to be more representative of the plot, use the ocular estimate to determine the canopy cover class. Include a comment in the notes indicating the ocular estimate was used to make the canopy cover class call.

If a plot is near the borderline between canopy classes, record the secondary class in the "2nd" column. The secondary canopy class should be based on the secondary vegetation group if it is different from the primary vegetation group.

15. Tree Size Class— Based on the tree size class (#9) determine the most abundant size class and record it in the "1st" column. In case of a tie, record the highest tree size class. A list of the tree size classes is found in Appendix B. If a plot is near the borderline between classes, record the secondary class in the "2nd" column.

16. Disturbance Event— If there is evidence of a disturbance event (fire, timber harvest, insect outbreak, wind event, etc.) within the last 5 years, check the appropriate box and include any relevant information such as whether the site was previously forested, contains standing dead trees, etc. in the notes section.

17. Notes— Record a description of the plot. Include information on the vegetation conditions, disturbances, approximate age of the disturbance, and any other information that is not included in the field form. This description is often the most valuable piece of information we have about a plot and provides details that can have an effect on the mapping process.

Observation Polygon Form

Three additional field observation polygons will be collected for each of the given field plots. Using the image plot maps provided (NAIP imagery, 1-meter resolution), identify a segment representing an area of homogenous vegetation, label it (A, B, C, or D), and fill in the data on the left side of the field form. This data provides general information on the vegetation group, dominance type, vegetation type, canopy closure, and tree size class. Make sure the labels are legible and the segments represent groups of homogenous vegetation, including canopy cover

and size class. Only record data you have a high level of confidence in, for example you may need to walk through a polygon in order to determine the dominance type or tree size class. The canopy cover information on the right side of the field form (8-12) will be collected at a later time using photo-interpretation techniques. If you think it would be helpful, designate a symbol on the NAIP plot map to indicate where you were standing when you made the field observation.

Where easily identifiable, target a variety of vegetation types and structure classes to capture the representative vegetation communities occurring in the project area. Again, field observation polygons are collected with the intent of capturing additional information about the various vegetation types that occur in the general area. Observation polygons that are adjacent to the field plot should only be collected if the segment represents a vegetation type that differs from the field plot.

1. Vegetation Group— Ocular estimate of dominant vegetation group for the segment you identified on the plot map

2. Dominance Type— Ocular estimate of the dominance type for the segment you identified on the plot map

3. Vegetation Type— Ocular estimate of the vegetation type for the segment you identified on the plot map

4. Canopy Cover— Ocular estimate of the canopy cover class using 5% increments for the segment you identified on the plot map

5. Tree Size Class— Ocular estimate of the tree size class for the segment you identified on the plot map

6. Coordinates— If the segment was difficult to identify on the plot map, and you had to walk into the site to determine the vegetation characteristics, take the center coordinates.

7. Notes— Record any information, such as site description or general vegetation conditions, that may be relevant to the site.

Appendix A.

Diameter at Root Collar (DRC)
(Adapted from Interior West Forest Inventory and Analysis P2 Field Procedures, V5.00)

For species requiring diameter at the root collar, measure the diameter at the ground line or at the stem root collar, whichever is higher. For these trees, treat clumps of stems having a unified crown and common root stock as a single tree; examples include bigtooth maple, juniper, and mountain mahogany. Treat stems of woodland species such as Gambel oak and bigtooth maple as individual trees if they originate below the ground.

Measuring woodland stem diameters: Before measuring DRC, remove the loose material on the ground (e.g., litter) but not mineral soil. Measure just above any swells present, and in a location so that the diameter measurements are a good representation of the volume in the stems (especially when trees are extremely deformed at the base). Stems must be at least 1 foot in length and at least 1.0 inch in diameter 1 foot up from the stem diameter measurement point to qualify for measurement. Whenever DRC is impossible or extremely difficult to measure with a diameter tape (e.g., due to thorns, extreme number of limbs), stems may be estimated and recorded to the nearest class. Additional instructions for DRC measurements are illustrated in Figures A and B.

Computing and Recording DRC: For all trees requiring DRC, with at least one stem 1 foot in length and at least 1.0 inch in diameter 1 foot up from the stem diameter measurement point, DRC is computed as the square root of the sum of the squared stem diameters. For a single-stemmed DRC tree, the computed DRC is equal to the single diameter measured.

Use the following formula to compute DRC:

DRC = SQRT [SUM (stem diameter^2)]
Round the result to the nearest 0.1 inch. For example, a multi-stemmed woodland tree with stems of 12.2, 13.2, 3.8, and 22.1 would be calculated as:
DRC = SQRT ($12.2^2 + 13.2^2 + 3.8^2 + 22.1^2$)
= SQRT (825.93)
= 28.74
= 28.7

If a previously tallied woodland tree was completely burned and has re-sprouted at the base, treat the previously tallied tree as dead and the new sprouts (1.0-inch DRC and larger) as part of a new tree.

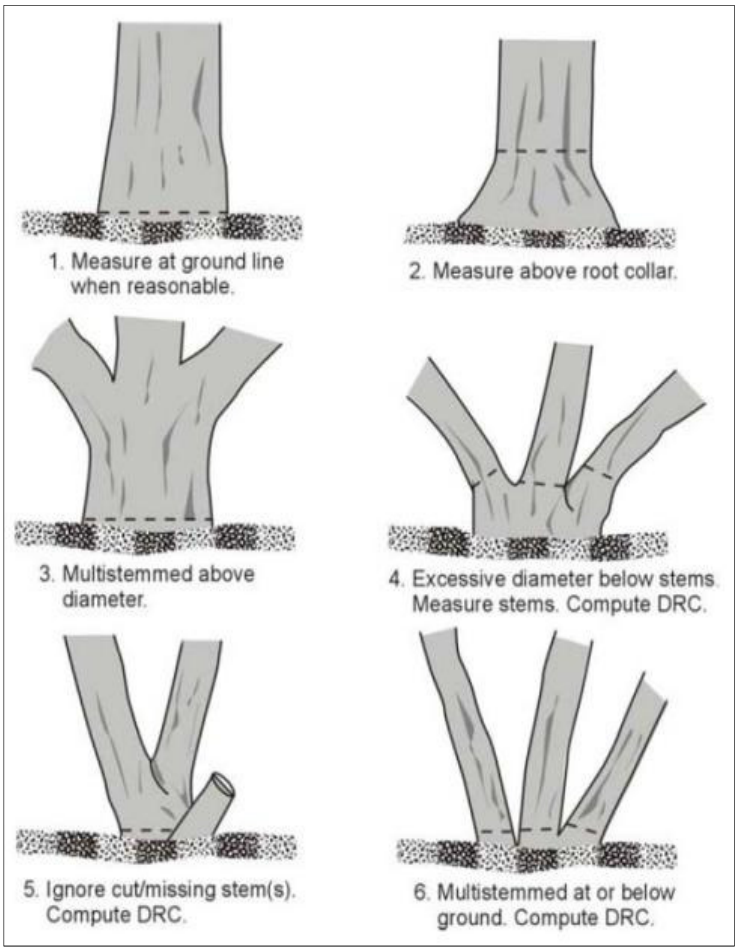


Figure A. How to measure DRC in a variety of situations. The cut stem in example number 5 is < 1 foot in length.

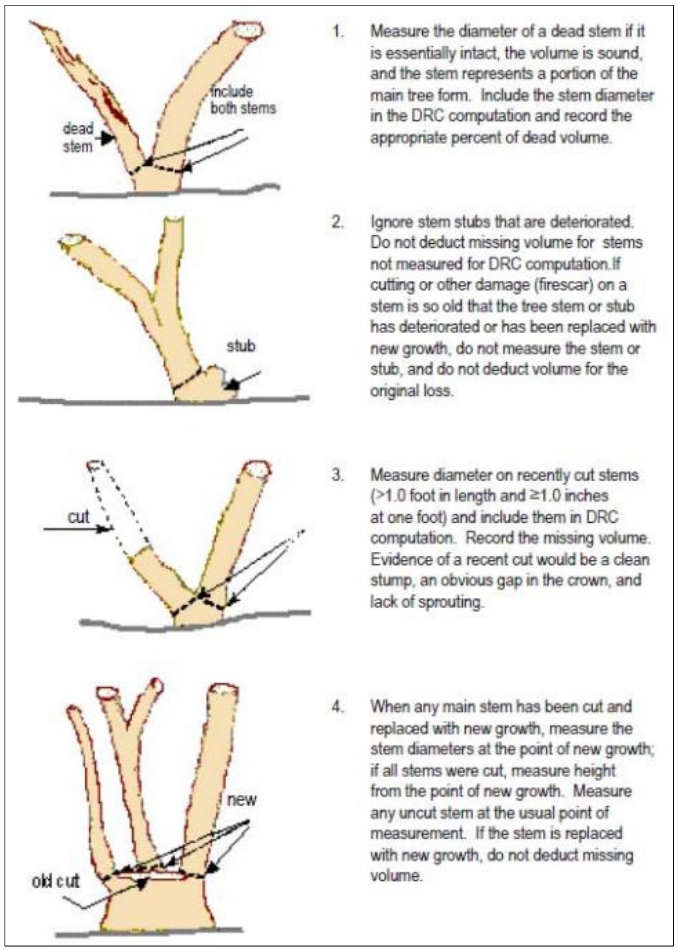


Figure B. Additional examples of how to measure DRC.

Appendix B. Vegetation Group, Vegetation Type, Canopy Cover Class, and Tree Size Class Codes

Vegetation Map Group	Code
Conifer Forest	**C**
Deciduous Forest	**D**
Shrubland	**S**
Herbaceous	**H**
Riparian	**R**
Alpine	**A**
Sparse Vegetation	**V**
Burned Area	**B**
Non-Vegetated	**N**
Woodland	**W**

Vegetation Map Unit	Code
Alpine	
Alpine	**ALPR**
Alpine non-riparian	**ALPN**
Riparian	
Herbaceous Aquatic/Flooded Wet Meadows	**HA**
Low Riparian Shrublands	**LRSH**
Mixed Broadleaf Riparian Shrublands	**MBRSH**
Willow Riparian Shrublands	**WRSH**
Riparian Grasslands	**RG**
Riparian Early Grasslands	**REG**
Riparian Forblands	**RFO**
Herbaceous	
Grasslands -Ruderal	**GRD**
Annual Grassland	**AG**
Key Grassland Species	**KGS**
Tall Forblands	**TF**
Forblands – Ruderal	**FRD**
Upland Grasslands and Low Forblands	**GRLFO**
Noxious Weeds (listed in the State of Idaho)	**NW**
Herbaceous/Conifer does not show up in key	**HC**
Shrubland	
Low Sagebrush Dwarf Shrublands	**DSE**
Sagebrush Dry Shrublands	**SSD**
Mountain Big Sagebrush	**MSB**
Three Tip Sagebrush	**TSB**
Wyoming Big Sagebrush	**WSB**
Basin Big Sagebrush	**BSB**
Bitterbrush	**BB**
Upland Forest Shrublands	**FSH**
Mountain Shrublands	**MSH**
Shrub/Conifer – does not show up in key	**SC**

Vegetation Map Unit	Code
Forest and Woodland	
Aspen	**AS**
Aspen/Conifer	**ASC**
Douglas-fir	**DF**
Douglas-fir Mix	**DFmix**
Douglas-fir/Ponderosa Pine	**DFP**
Juniper	**J**
Limber Pine	**LM**
Lodgepole Pine	**LP**
Mahogany	**MM**
Ponderosa Pine	**PP**
Riparian Forest Woodland	**RFW**
Spruce/Fir	**SF**
Spruce/Fir/Aspen	**SF/AS**
Spruce/Fir/Whitebark	**SF/WB**
Whitebark Pine	**WB**
Other	
Standing Dead Trees	**SDT**
Agriculture	**AGR**
Developed	**DEV**
Barren/Rock	**BR**
Water	**WA**
Unknown	**UNK**

Tree Canopy Cover Class	Code
10 - 29%	TC1
30 - 59%	TC2
≥ 60%	TC3

Shrub Canopy Cover Class	Code
10 - 24%	SC1
25 - 34%	SC2
≥ 35%	SC3

Tree Size Class	Code
< 4.5 feet tall	TS1
0 - 4.9"	TS2
5 - 9.9"	TS3
10 - 19.9"	TS4
20 - 29.9"	TS5
≥ 30"	TS6